



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/586,173

07/17/2006

HirotaKa Kawabata

MAT-8856US

2828

52473

7590

08/14/2009

RATNERPRESTIA

P.O. BOX 980

VALLEY FORGE, PA 19482

EXAMINER

BOBISH, CHRISTOPHER S

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

08/14/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|---------------------------------------|--|--|
| Office Action Summary | Application No. 10/586,173 | Applicant(s) KAWABATA ET AL. | |
| | Examiner CHRISTOPHER BOBISH | Art Unit 3746 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/05/2009 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Mills et al (US Patent No. 3,759,817) in view of Mills et al (US Patent No. 3,715,302) in view of Bowers (US Patent No. 6,476,120).

Art Unit: 3746

Kwon teaches:

limitations from claim 1, a refrigerant compressor (**FIG. 2**) comprising: a hermetic container (**24**) which internally stores oil (**62**) and also accommodates a compression mechanism (**28**) for compressing refrigerant gas (**C. 4 Lines 11-20**), wherein the oil is between a viscosity grade not lower than ISO VG3 to a viscosity grade not higher than ISO VG 8 (**C. 3 Lines 38-40**);

Furthermore, it would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to use an oil within the range of claim 1, as suggested by Kwon for the reasons stated above (lubrication, reduced sludge, etc), since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum value or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Kwon does not teach that the oil is a blended oil, but Mills 817' does.

Mills 817' teaches:

limitations from claim 1, wherein a blended oil is composed of two oils having individual characteristics; the first oil being within 50-70 percent of the total volume and the second oil being within 10-30 percent of the total volume (**see C. 1 Line 23 to C. 2 Line 25**); and the final blended oil has a viscosity within the range of ISO VG3 to ISO VG8 (**C. 3 Lines 25-35 and C. 6 Lines 45-51; 40 SUS @ 100 F**);

It would have been obvious to one having ordinary skill in the art of lubricant compositions at the time of the invention to use a blended oil as taught by Mills 817' in the compressor of Kwon in order to reduce the sludge formation.

Neither Kwon nor Mills 817' teaches having two component oils with different boiling points, but Mills 302' does.

Mills 302' teaches:

Art Unit: 3746

limitations from claim 1, a refrigeration oil composition for a compressor having multiple components (naphthenic oil and paraffinic oil), wherein a characteristic (naphthenic) component makes up 50-75 percent of the blend and the other characteristic component (paraffin oil) makes up 25-50 percent of the blend (**C. 3 Lines 7-14, these ranges overlap with the claimed ranges**); wherein the components are selected so as to have a wide boiling range (**C. 3 Lines 7-9**);

Mills does not specifically teach specific characteristic boiling point ranges for each component, Mills does teach that paraffin oils would be added to provide a high (higher than naphthenic) boiling point portion (**C. 2 Lines 51-54; C. 2 Lines 43-50 of Mills 302' for motivation**);

Bowers teaches a naphthenic oil having a boiling point of less than 300°C that is appropriate for use in a refrigerant composition (**C. 3 Lines 6-11**);

When combined, the refrigerant oil composition characteristics of Mills 817', Mills 302' and Bowers would create a blended oil having a characteristic with a boiling point below 300°C and a volume ratio between 50-70%; and a second oil characteristic with a higher boiling point than the first component and a volume ration between 10-30%;

Neither Mills 817' nor Mills 302' nor Bowers teaches a specific boiling point value for the paraffin oil. However, it would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to use a paraffin oil within the range of claim 2 (note that Mills teaches the paraffin oil as having a higher boiling point than the naphthenic oil) in order to reduce coke deposits, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum value or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to use the oil composition as taught by Mills 817', Mills 302' and modified by Bowers (thereby creating an oil with a wide boiling range and low viscosity) in the compressor as taught by Kwon in order to reduce coke deposits and oil decomposition.

Art Unit: 3746

Kwon, Mills 817', Mills 302' and Bowers disclose and teach of the refrigerant compressor in claim 1.

Kwon further teaches:

limitations from claims 3 and 10, wherein the refrigerant is R600a **(C. 5 Lines 31-46)** and the oil is a mineral oil or synthetic **(C. 5 Lines 50-55)**;

limitations from claims 5 and 12, wherein the compression mechanism is a reciprocating mechanism **(C. 4 Lines 11-20)**;

Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Mills et al (US Patent No. 3,759,817) in view of Mills et al (US Patent No. 3,715,302) in view of Bowers (US Patent No. 6,476,120) as applied to claims 1, 3, 5 above, and in further view of Seiki (US Patent No. 5,108,634).

Neither Kwon nor Mills 817' nor Mills 302' nor Bowers teaches that the oil is provided with a phosphorous extreme pressure additive, but Seiki does.

Seiki teaches:

limitations from claims 4 and 11, wherein phosphorous extreme pressure additive is added to a refrigerant oil **(C. 3 Lines 49-51 and C. 4 Lines 13-17)**;

It would have been obvious to one having ordinary skill in the art of compressors to use a pressure additive as is taught by Seiki in order to increase the effectiveness of the oil in under pressures created by the compressor.

Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Mills et al (US Patent No. 3,759,817) in view of Mills et al (US Patent No. 3,715,302) in view of Bowers (US Patent No. 6,476,120) as applied to claims 1, 3, 5 above, and in further view of Nagai et al (US Patent No. 6,054,224).

Kwon teaches:

limitations from claim 6, an electric motor (**FIG. 2 (26) C. 4 Lines 14-15**), for driving a compression mechanism (**28**);

Neither Kwon nor Mills 817' nor Mills 302' nor Bowers teaches that the motor uses a low oligomer insulating material, but Nagai does.

Nagai teaches:

limitations from claims 6 and 13, an insulating material for an electric motor having low amounts of oligomers, for use in refrigeration systems, specifically compressors, **C. 1 Lines 5-15**;

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to use low oligomer type insulation on a motor as taught by Nagai in order to reduce the environmental damage caused by the compressor, C. 1 Lines 10-15 and Lines 42- 45.

Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Mills et al (US Patent No.

Art Unit: 3746

3,759,817) in view of Mills et al (US Patent No. 3,715,302) in view of Bowers (US Patent No. 6,476,120) in view of Nagai et al (US Patent No. 6,054,224) as applied to claims 1, 3, 5 and 6 above, and in further view of Egawa et al (US PGPub No. 2006/0166844 A1).

Kwon, Mills 817', Mills 302', Bowers and Nagai disclose and teach of the compressor in claims 1 and 6.

Neither Kwon nor Mills 817' nor Mills 302' nor Bowers nor Nagai discusses evaporation temperature, but Egawa does.

Egawa teaches in Page 1 paragraphs [0001, 0002, 0007-0009] of a lubricating oil composition having low evaporation loss and low viscosity; paragraph [0002] teaches specifically that combinations of oils having different evaporation temperatures results in unwanted viscosity levels; paragraph [0008] further teaches that kinematic viscosity is related to the evaporation losses of an oil; **It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to seek a consistent evaporation temperature across the oil composition in order to accurately control the properties (viscosity) of the oil during use. Furthermore, because the kinematic viscosity is directly related to the evaporation of the oil, it is obvious that oils within a small range of viscosities would likely have similar evaporation temperatures.**

Claims 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Mills et al (US Patent No. 3,759,817) in view of Mills et al (US Patent No. 3,715,302) in view of Bowers (US Patent No. 6,476,120) in view of Nagai et al (US Patent No. 6,054,224) as applied to claims 1, 3, 5 above, and in further view of Hannibal (US Patent No. 4,252,506).

Art Unit: 3746

Kwon, Mills 817', Mills 302', Bowers and Nagai teach and disclose of the compressor in claims 1 and 6. Kwon teaches an electric motor **(26)** with windings, **FIG. 2 (42) C. 4 Lines 30-31**;

Neither Kwon nor Mills 817' nor Mills 302' nor Bowers nor Nagai explicitly teach a distributed winding, but Hannibal does.

Hannibal teaches:

limitations from claims 8 and 15, an electric motor, **FIG. 3 (16) C. 3 Line 22**, in a compressor, **FIG. 3 (10) C. 3 Lines 20-21**, wherein the motor is a distributed winding motor, **C. 5 Lines 8-11**;

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention substitute the winding structure taught by Hannibal and as is known in the art into the compressor motor of Kwon in order to meet the driving demands of the compressor and system.

Claims 9 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Mills et al (US Patent No. 3,759,817) in view of Mills et al (US Patent No. 3,715,302) in view of Bowers (US Patent No. 6,476,120) in view of Nagai et al (US Patent No. 6,054,224) as applied to claims 1, 3, 6 and 13 above, and in further view of Yamazaki et al (US Patent No. 6,940,204 B2).

Kwon, Mills 817', Mills 302', Bowers and Nagai teach and disclose of the compressor in claims 1 and 6. Kwon teaches an electric motor **(26)** with windings, **FIG. 2 (42) C. 4 Lines 30-31**;

Neither Kwon nor Mills 817' nor Mills 302' nor Bowers nor Nagai explicitly teach a concentrated winding, but Yamazaki does.

Yamazaki teaches:

Art Unit: 3746

limitations from claims 9 and 16, wherein an electric motor for a compressor is a concentrated winding motor (**C. 1 Lines 15-19 and 27-37**);

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention substitute the winding structure taught by Yamazaki into the compressor motor of Kwon in order to reduce the size of the motor and compressor (C. 1 Lines 27-37 of Yamazaki).

Response to Arguments

The Mills 817' reference has been added to teach a low viscosity range for combined oils, and thus to make up for the deficiencies of the previously presented Mills 302' reference. The examiner notes that the two Mills references are related by incorporation and have the same inventorship, thus the necessary information and advantages of the above combination was obviously available.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER BOBISH whose telephone number is (571)270-5289. The examiner can normally be reached on Monday through Thursday, 7:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571)272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3746

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Bobish/
Examiner, Art Unit 3746

/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746

/C. B./
Examiner, Art Unit 3746